AMERICAN BONE HEALTH™

Public Comment for Proposed Eligible Professionals Electronic Health Record (EHR) Incentive Program Measure:

Appropriate Use of Dual-energy X-ray Absorptiometry (DXA) Scans in Women Under 65 Years Who Do Not Meet the Risk Factor Profile

November 25, 2013

Bone Mineral Density (BMD) testing is an important diagnostic tool for health care providers to understand one component of bone health. However, it is not the entire story.

There are critically important clinical risk factors, as measured by a number of tools including the FORE Fracture Risk Calculator™ (https://riskcalculator.fore.org) that assess the possibility of fracture – the most important consequence of bone loss.

To focus exclusively on finding overutilization of BMD testing as suggested in the proposed measure, is too simplistic for management of a disease that affects an estimated 57 million Americans.

In 2004, the National Osteoporosis Risk Assessmenti (NORA) followed a large cohort of healthy women (200,160) and reported the frequency of low bone mass and fractures compared to women age 65 and older. Of the 163,935 women completing a 1-year follow-up, 53% (n=87,594) had fractures. Of the women who had fractures, 31% had low bone mass (T scores $\leq$ -1.0) but not osteoporosis by BMD criteria. The researchers concluded that "Low BMD in younger postmenopausal women 50-64 years of age showed a 1-year relative risk of fracture similar to that found in women $\geq$ 65 years of age".

In a July 2013 screening of 631 adults over age 45 using the FORE Fracture Risk Calculator, we found that 70% of the individuals at moderate risk for fracture (n=229) were under age 65. In the high risk category, 31% (n=20) of the individuals at high risk were age 55-64. All of these patients would benefit from further examination of any co-morbidities that cause their elevated fracture risk (including BMD testing) and counseling about strategies to prevent bone loss and reduce fracture risk.

Furthermore, as DXA underestimates BMD in individuals with smaller than average bone size, it can be very important to assess baseline BMD by DXA at or close to the time of menopause to differentiate a low T-score due to loss of bone mass from a "low" peak bone mass, which convey quite different risks of fracture. This is particular important because multiple studies have identified the rate of loss of hip (usually femoral neck) BMD as one of the most potent risk factors for incident fractures (particularly hip fractures) in both women[2-4] and men[5]. If the initial DXA is performed at age 65, a woman losing femoral neck BMD at a much faster than average rate since menopause may already have experienced a vertebral fracture and be at extremely high risk for a hip fracture.

The best way to address any current over-diagnosis and treatment would be to greatly enhance the education of healthcare providers and the public about osteoporosis, with emphasis on using a validated fracture risk assessment (like the FORE FRC™ or WHO's FRAX™ tool). Creating a policy that BMD testing

should start at age 65 is not the best approach to reduce the costs associated with the disease or lessen the impact on the quality of life of those affected by fractures.

Look to the example of checking cholesterol levels to treat cardiovascular disease or treating high blood pressure to avoid strokes. As a prevention strategy, fracture risk screening and treatment makes sense.

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[i] Siris ES, Brenneman SK. Predictive value of low BMD for 1-year fracture outcomes is similar for postmenopausal women ages 50-64 and 65 and Older: results from the National Osteoporosis Risk Assessment (NORA). J Bone Miner Res. 2004 Aug;19(8):1215-1220.

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[3] Nguyen TV, Center JR, Eisman JA. Femoral neck Bone Loss Predicts Fracture Risk Independent of Baseline BMD. J Bone Miner Res. 2005 Feb;20(7):1195-1201.

[4] Bruyere O, Varela AR, Adami S, Detilleux J, Rabenda V, Hilligsmann M, Reginster J-Y. Loss of Hip Bone Mineral density Over Time is Associated with Spine and Hip Fracture Incidence in Osteoporotic Postmenopausal Women. Eur J Epidemiol. 2009 Nov;24(11):707-712.

5 Cawthorn PM, Ewing SK, Mackay DC, Fink HA, Cummings SR, Ensrud KE, Stefanick ML, Bauer DC, Cauley JA, Orwoll ES. Change in Hip Bone Mineral Density and Risk of Subsequent Fractures in Older Men. 2012 Oct;27(10):2179-2188.

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